Licensure
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FEATURE STORY

# FOUR-YEAR DEGREE BECOMING THE STANDARD FOR SURVEYING LICENSURE

BY DAVE GIBSON, PH.D., L.S.
EMERITUS MEMBER, FLORIDA BOARD OF PROFESSIONAL SURVEYING AND MAPPING

Surveying education leading to a four-year degree is increasingly being used in definitions of the surveying profession. Some states have adopted the four-year standard into their practice laws, while others have not.

In 1992, the Florida Supreme Court ruled in a case that surveying was not a profession because it lacked a four-year degree standard. In 2003, a Kentucky court applied the same standard, stating that surveying did not meet the definition of a profession. The U.S. Department of Labor, in administering the Fair Labor Standards Act, recently decided that Maine surveyors were not part of a "learned profession" because of the lack of a four-year standard for entry.

State regulation and licensure do not translate to professional status for surveying. Instead, they are a means of protecting the public.

## Surveying education: a history

Civil engineering departments began to drop surveying coursework from their offerings 50 years ago. After the "Grinter Report," which said that engineering education should drop hands-on practical subjects, was published in 1955, civil engineering department chairs voted to implement the report's recommendations. During the 1960s and '70s, retiring surveying professors were not replaced. Today, the washout is complete. If a civil engineering school has a surveying course, it is usually taught by a graduate student or part-time adjunct. The American Society of Civil Engineering's 2007 Body of Knowledge does not reference surveying.

The surveying profession then proceeded to establish itself as a freestanding academic discipline through the creation of four-year academic programs, national ABET accreditation, and uniform national exams through NCEES; expansion of the legislative definitions of surveying; creation of separate licensing boards for surveying; and establishment of legislation requiring four-year degrees to practice surveying.

## Accredited degrees and education requirements

In the late 1970s, the American Congress on Surveying and Mapping (ACSM) was named the ABET lead society for surveying programs and published accreditation criteria. In 1979, the program at California State University–Fresno became the first surveying program to be nationally accredited by ABET. A school must choose accreditation under one of four commissions; ABET has accreditation commissions for engineering, engineering technology, applied science, and computing programs.

The first dedicated four-year surveying programs were established in the 1960s and '70s. Currently, we have a total of 21 accredited surveying programs in the U.S., spread between the engineering, engineering technology, and applied science commissions. About 10 four-year surveying programs are currently developing and moving toward ABET accreditation. States without

*continued on page 14*



JOHN F. GREENHALGE
COMMITTEE ON LAW ENFORCEMENT CHAIR

# Get to know Enforcement Exchange

As regulatory boards, we have a mission to protect the health, safety, and welfare of the residents of our respective states. Part of that mission is ensuring that we're licensing qualified individuals to practice engineering and surveying. We're all familiar with the entry requirements for these professions, the three legs of the stool—education, experience, and examination. But competency, character, and integrity should also be considered during the application process. These often come into consideration later in one's career, often when applying for comity licensure or a certificate of authorization.

I ask board members and administrators to consider the following: If you had someone applying for licensure in your state who had been disciplined in another state for failing to exercise supervisory control over a project that failed and resulted in injury or death, wouldn't you want to know about that? What about an applicant who's been convicted of sexual assault? While I recognize these examples are on the far end of the disciplinary spectrum, they are real. The Ohio board has considered two such cases in the past year. But let's look at a more common example.

What about someone who's committed a single ethics violation? It may seem a minor incident, but what if this individual committed the same violation in other states? Would that affect your decision? Wouldn't you want to know more?

NCEES already has an effective tool in place to help Member Boards during the application review process: Enforcement Exchange. This online database allows boards to enter disciplinary actions taken against violators.

Many boards use Enforcement Exchange to screen licensure and exam applicants; it is impractical to scan every other board's newsletter or Web site to find out about disciplinary actions. Enforcement Exchange provides additional information boards can use at their discretion, thereby strengthening the application review process.

The Committee on Law Enforcement recently surveyed Member Boards and found that fewer than half use Enforcement Exchange. The main reasons given for not using it were lack of awareness, insufficient staff to post information, and lack of understanding of the process. The committee has been working with NCEES staff to correct these issues and make Enforcement Exchange more user-friendly. The format has been updated recently, and a short tutorial on how to use the database is included. The committee has made presentations at the Annual Meeting and will continue to assist boards getting started with Enforcement Exchange.

This information is vital to ensuring that we are licensing competent individuals and protecting the public health, safety, and welfare across this country and its territories.

The committee urges board members to encourage their board staff to use Enforcement Exchange, not only to record disciplinary actions but to screen applications as well. Administrators must ensure that their enforcement staff enters disciplinary actions after the final disposition. It takes just a few minutes to record information vital to ensuring that we are licensing competent individuals and protecting the public health, safety, and welfare across this country and its territories.



DAVID L. WHITMAN, PH.D., P.E.
NCEES PRESIDENT

# Moving toward a more uniform licensure process

Having a higher percentage of engineers pursuing licensure benefits the public and the profession. We can accomplish this by making the licensure process more user-friendly.

Most of this year's committees and task forces have already submitted their reports. Between now and the Annual Meeting, we will have the opportunity to discuss their findings and consider the decisions we will make in Denver.

There is a lot to consider this year. I encourage you to keep up with ongoing developments, as feedback and discussion from the zone meetings often result in changes to reports and motions. *Licensure Exchange* and the My NCEES portal at ncees.org are two places you can check for timely information about Council activities.

We play an important role in protecting the public. It is our responsibility to make sure the licensure process limits practice to qualified individuals. I would add that it is also our responsibility to make the licensure process accessible to as many qualified engineers as possible.

Having a higher percentage of engineers pursuing licensure benefits the public and the profession. We can accomplish this by making the process more user-friendly. Due to exemptions, many engineers have the option of not pursuing a P.E. How many engineering students and unlicensed engineers decide not to begin the process, not because they aren't qualified or able to pass the exams, but simply because it seems too complicated?

Consider exam registration. The steps can vary considerably from one state to another, and in some cases they can be very complicated, especially for college students who are new to the process. This also applies to other processes such as comity licensure and continuing education.

In a survey that NCEES regularly conducts with FE exam takers, only 60 percent said they understand the licensure requirements. This is for students who have actually registered for an exam, not for the general student population. What happens to the other 40 percent?

By simplifying the licensure processes and making them as consistent as possible, we will see more engineers embracing the licensure process, continuing on that path through the PE exam, and enjoying the benefits and opportunities that come with being licensed.

NCEES is taking steps in the right direction. The new examinee management system that will go into effect this October will make exam registration more uniform. The Evaluation of Applications Task Force is investigating ways to make the application processes more consistent both for initial and comity licensure (see article on page 10). The intent is not necessarily to make every state identical but rather to minimize the major differences to create more user-friendly processes.

As we consider the issues in front of us, I urge the voting members of NCEES to work to strengthen the licensure process while keeping in mind the perspective of the candidates. A licensure model that seems perfect in theory will not work if it is too complicated in practice.



JERRY T. CARTER
NCEES EXECUTIVE DIRECTOR

# ANSI standards give NCEES another path for public protection

Being an accredited standards developer helps NCEES emphasize the importance of licensure across the engineering and surveying professions and has the potential to increase the percentage of graduates seeking licensure.

In keeping with its strategic goal of promoting the value of licensure, in 2006 the Board of Directors decided NCEES should become an accredited standards developer for the American National Standards Institute (ANSI).

ANSI oversees the development of standards, services, and processes throughout the country and represents the U.S. in the International Organization for Standardization. The Board felt that partnering with ANSI would facilitate the wider adoption of licensure requirements in government and industry and enhance the international profile of NCEES.

Since NCEES became an accredited standards developer in 2007, the definitions for Model Law Engineer and Model Law Surveyor have been accepted as ANSI standards, and NCEES is currently pursuing similar recognition for the Model Law Structural Engineer designation. Some people have asked why NCEES would seek ANSI recognition since these are not technical standards.

The NCEES Board of Directors recently examined this question and decided our commitment to the protection of the public health, safety, and welfare holds the answer.

Being an accredited standards developer helps NCEES emphasize the importance of licensure across the engineering and surveying professions and has the potential to increase the percentage of graduates seeking licensure.
ANSI standards are widely recognized and used by industry and government, two sectors typically exempt from licensure requirements. The Board hopes that codifying the definitions of MLE, MLS, and MLSE as ANSI standards will give these exempt sectors reason to place greater significance on them and include them in job position descriptions, project requirements, and plan development, with the ultimate goal always being to further the protection of the public.

At its meeting in November 2009, the Board reaffirmed its support of NCEES pursuing the development of standards for ANSI adoption.

## Board approves parking expansion

In November 2009, the Board of Directors approved a capital improvement project at the NCEES headquarters to increase our space for parking. While we have several dedicated spots for visitors, parking capacity is tested when an exam committee meets.

Recognizing that the parking area will not meet our future needs, I commissioned a local engineering firm to provide design plans to increase our parking capacity in the rear of the building. The firm presented preliminary plans that provide an additional 35 parking spaces and a larger turning radius for delivery vehicles.

Since the NCEES facility is located on property leased from Clemson University, the preliminary plans are now subject to review by the university. We expect to gain its approval in the coming weeks and have this project under way by early spring.

## MBAs meet at NCEES headquarters

On February 10, the biennial meeting of the Member Board Administrators' Networking Group took place at NCEES headquarters in Clemson, S.C. Despite inclement weather and travel restrictions preventing some from making the trip, we ultimately had a good mix of MBAs from each of the zones and members of the NCEES leadership.

NCEES staff made several presentations on current initiatives, including the examinee management system that will be introduced for the October 2010 exam administration.

This meeting not only reminded us that most Member Boards deal with similar issues, but it also provided a forum to discuss problems and find solutions. We appreciate those who were able to attend taking the time to participate.

COMMITTEE FOCUS

DAVID L. CURTIS, P.E.
COMPUTER-BASED TESTING TASK FORCE CHAIR

# CBT Task Force recommends move to computer-based testing for FE and FS exams

Many people ask why we should even consider going to CBT since we have a successful paper-and-pencil program. There are many answers to this question, one of which is that we have taken the current paper-and-pencil format to the limit of its effectiveness in measuring minimum competency.

This year, the Computer-Based Testing (CBT) Task Force has continued to study the issues related to converting NCEES exams to a computer-based format.

After extensive analysis of economic, logistical, and regulatory considerations, the task force is ready to recommend a course of action. At the Annual Meeting this August, it will present a motion that NCEES move the FE and FS exams to CBT as soon as feasible, which could be within 2–3 years.

## Asking questions, finding answers

Many people ask why we should even consider going to CBT since we have a successful paper-and-pencil program. There are many answers to this question, one of which is that we have taken the current paper-and-pencil format to the limit of its effectiveness in measuring minimum competency.

Conversion to CBT would eliminate many of the security risks associated with our current processes. It also allows for more sophisticated question types to better assess minimum competency. Exams could be given more frequently and in more locations, while keeping uniformity in security and candidate services. Using a computer-based format could also speed up score reporting.

The challenges associated with CBT are many and varied, and the task force has covered the pros and cons of each area thoroughly in its work over the past three years.

**Exam delivery type**—Which should we use?

- **Linear forms exam**—Delivers a linear, item-by-item format (as with the current paper-and-pencil format)
- **Computer Adaptive Test (CAT)**—Provides a computer-generated variable-length exam with limited exposure of items
- **Linear-on-the-fly (LOFT)**—Generates multiple forms with a unique but statistically equivalent form for each test-taker; also reduces exposure of items

**Item banks**—Are they large enough, and are they appropriate for CBT? It is important to note that the following issues are of concern whether or not NCEES moves to CBT.

- The need to upgrade item-banking software so that it is compatible with industry standard formats
- The need to evaluate the item banks and, where necessary, increase the number of items to meet the exam specifications
- The need to integrate pre-test items in the item-banking process to meet testing industry standards

Some argue that it is unfair for candidates to have to spend time on questions that aren't scored. Currently, however, they spend time on questions that might be flawed or perform poorly but still count in the score. Pretesting actually improves the exams' fairness by decreasing the use of untried

items that do not have statistical indices of difficulty and quality.

**Exam administration**

- **Frequency of administrations**—This will vary depending on which exam is converted to CBT first and the sequence of other conversions.
- **Technical references**—The FE and FS currently use NCEES-supplied reference material. The PE and PS exams are open book. The solution may vary depending on which exam is being converted.
- **Calculators**—CBT vendors will allow candidates to use their own NCEES-approved calculators.

**Psychometrics**

- **Length of exams**—The largest expense item associated with CBT is seat time: the longer the exam, the longer the testing center seat is reserved for the candidate. This creates a real incentive to determine psychometrically whether we can develop a shorter exam that accurately tests for minimum competence.
- **Number of questions**—How many questions are necessary to establish minimum competence?
- **Statistics**—We need to consider the use of item response theory statistics in addition to classical statistics to compare test items as well as test forms.

**Legislative**

Not all jurisdictional statutes and rules would currently allow computer-based testing. The *Model Law* and *Model Rules* would have to be modified to help overcome statutory impediments to using this format.

### Moving forward

The task force has concluded that the fundamentals and professional exams present separate challenges and should be addressed separately. The issue of references has essentially been resolved for the FE and FS exams but remains a sticking point on the PE exams. It is less of a problem for the PS exam.

Additional information on price will be available at the upcoming zone interim meetings, but preliminary analysis indicates that the cost will not exceed that of other exams used for licensing or admission purposes.

The task force has had a lot of questions to answer and challenges to consider, and there are more ahead of us. However, we feel that the benefits of computer-based testing make it worth the effort.

# Krebs appointed to Vermont General Assembly

Vermont Governor Jim Douglas has appointed NCEES Past President Robert Krebs, P.E., L.S., to the Vermont House of Representatives. Krebs fills the seat left vacant by the passing of Rep. Ira Trombly.

"Bob will bring important perspective to Montpelier with his long business experience," said Governor Douglas when announcing the appointment in January. "I believe he will do a great job represent[ing] the people of West Milton and Grand Isle County."

Krebs was the 2002–03 president of NCEES and the 1999–2001 Northeast Zone vice president. An emeritus member of the Vermont Surveying Board, he served as board chair from 1995 to 1997.

COMMITTEE FOCUS

MICHAEL CONZETT, P.E.
ENGINEERING EDUCATION TASK FORCE CHAIR

# Task force explores alternatives to "master's or equivalent" requirement for engineering licensure

The Engineering Education Task Force was formed in 2007 (as the Bachelor's Plus 30 Task Force) to address the additional education requirement for initial engineering licensure. One of its charges in 2009–10 is to consider alternatives to the 2020 education requirement—a master's degree in engineering or equivalent—as set forth in the NCEES *Model Law*.

As in previous years, the task force represents a wide range of views. It includes NCEES members, a consultant from ABET, and resource members from the following societies: American Council of Engineering Companies; American Institute of Chemical Engineers; American Society of Civil Engineers; American Society for Engineering Education; American Society of Mechanical Engineers; American Society of Heating, Refrigerating, and Air-Conditioning Engineers; IEEE–USA; and National Society of Professional Engineers.

> Ultimately, the task force agreed that permitting the additional educational requirements to be satisfied by structured mentoring combined with education and experience in this manner is very different from the other pathways to licensure and needs much more study to determine its feasibility.

At its December meeting, the task force agreed to focus on two alternatives. It developed them further at its January meeting and plans to present two related motions at the Annual Meeting.

## Alternative 1

The first alternative is to enable candidates earning a B.S. degree from an ABET-accredited bachelor's program that requires a minimum of 150 credit hours to become licensed. To be eligible, the program must have at least 115 credit hours of math, science, and engineering, with at least 75 of the 115 hours in engineering. The rationale for accepting a program that meets these requirements is that the additional education initiative started as a result of an argument that there is an increasing number of bachelor degree programs that don't provide what is needed for initial licensure. A bachelor's program with these qualifications is more likely to provide the needed body of knowledge, so it should be accepted in fulfillment of the additional education requirement.

After discussing the pros and cons, the task force agreed that it will present a motion at the Annual Meeting for the Committee on Uniform Procedures and Legislative Guidelines (UPLG) to be charged with proposing an amendment to the *Model Law* to incorporate language for a program that meets these requirements to be added as a pathway to licensure after 2020.

## Alternative 2

The second alternative the task force discussed is one in which a candidate would earn a B.S. degree from an ABET-accredited program and then complete a prescribed number of technical development units and six years of experience with structured mentoring. Those in favor of

this alternative argued that it offers flexibility for the candidate, recognizes the B.S. degree as the degree needed to be an engineer (when combined with experience), formalizes the training and experience aspect of licensure, reinforces the concept of lifelong learning, and starts lifelong learning early in the licensure process. Those opposed to this alternative were concerned about ensuring that the education is of sufficient rigor and at the level expected;

*continued on page 11*

## Proposed motion

Recognizing the need to develop knowledge, skills, and attitudes beyond the baccalaureate and before licensure, and recognizing that significant learning can occur outside the classroom, the following is proposed as an alternate pathway to licensure.

Upon graduating with an EAC/ABET B.S. degree in engineering, the applicant, during a 6-year period of progressive engineering experience before taking the PE exam, would be required to:

- Take courses totaling X (task force discussed 30) Assessed Learning Days (ALD) of continuing education in areas germane to professional practice and that support and enhance capability in the applicant's technical area of practice.
- Participate in a structured mentoring program amounting to at least 36 hours/year of interaction with a licensed P.E. mentor in the 3 years prior to application to sit for the principles and practice exam. The mentoring interaction is to be documented in a mentoring logbook that becomes part of the applicant's dossier. The mentoring program shall be structured to provide assurance that the individual has attained the appropriate body of knowledge for professional practice necessary for the individual's engineering discipline or practice area.

For the additional coursework, either credit or noncredit courses will be accepted, but the applicant would be required to demonstrate successful completion and that the content of the coursework was of sufficient content and rigor to meet the above requirements. Acceptable demonstration of content and rigor would include: (1) university courses; (2) continuing education courses offering ALDs (or equivalent credit units but not amounting to less than 1 ALD); (3) industrial in-house specialty courses designated as acceptable by the candidate's mentor; and (4) other courses meeting accreditation standards of nationally recognized authorities (including NCEES).

For the mentoring program, the applicant would be required to meet with and document structured mentoring hours with one or more senior P.E.s in his/her firm or P.E.s practicing in the applicant's desired area of practice. Alternately, the candidate can participate in a mentoring program offered by his/her technical or professional society.

## Additional education timeline

This year's Engineering Education Task Force continues almost a decade of NCEES focus on education requirements for engineering licensure. Below is a short timeline. For more in-depth history, go online to ncees.org/about_ncees.php.

**2001:** Engineering Licensure Qualifications Task Force established

**2003:** ELQTF presents findings to Council; Licensure Qualifications Oversight Group established

**2004:** LQOG reports to Council

**2005:** Council begins process of changing *Model Law*

**2006:** Council votes to add language to *Model Law/Rules* requiring a master's or equivalent for licensure

**2007:** Council votes to uphold the additional education requirement

**2008:** Bachelor's Plus 30 Task Force established; Council approves *Model Rules* definitions of acceptable coursework and approved course providers; Council passes resolution to explore other alternatives

**2009:** Engineering Education Task Force develops response to resolution, clearinghouse, and white paper

**2010:** Engineering Education Task Force charged with considering alternatives to education requirement

COMMITTEE FOCUS

DONNA D. SENTELL
EVALUATION OF APPLICATIONS TASK FORCE CHAIR

# Task force recommends best practices for evaluating licensure applications

Boards should work toward using model applications and supporting documentation forms.

The Evaluation of Applications Task Force was created to develop a set of best practices for evaluating initial and comity licensure applications. All areas of the application were open for consideration, beginning with experience, equivalence to EAC/ABET education, and examinations. You may recognize these as the structure of the three-legged stool often used to describe the requirements for licensure, but they are subject to different interpretations by Member Boards, resulting in different requirements for applicants in the various jurisdictions.

The task force polled the engineering boards on evaluating engineering licensure applications. Assimilating the wide-ranging responses was an enormous task, but the following represent the majority.

*When does the clock start for counting the four years of experience?*
Upon graduation/upon confirmation of the qualifying degree

*If experience cannot be gained under the direct supervision of a P.E., are references from supervisors (non P.E.s) and/or from colleagues (P.E.s) acceptable?*
Yes

*How do we define EAC/ABET equivalent?*
A program that contains at least the minimum technical content to meet or exceed comparable U.S. standards

*What EAC/ABET guidelines should be used—current or those in place at initial licensure?*
At the time the degree was conferred/at initial licensure

*Can an engineering technology degree be EAC/ABET equivalent?*
The standard for engineering technology programs is set by ABET's Technology Accreditation Commission. It is not equivalent to the Engineering Accreditation Commission's standard but does have value. A degree from a TAC/ABET-accredited engineering technology program may be an acceptable alternative for a path to licensure in certain jurisdictions.

*Is the lack of humanities/social sciences for international candidates a problem?*
It can be a problem, but this can be mitigated with additional experience requirements.

*How do we handle degrees from Washington Accord signatories?*
Except for those from Canadian Engineering Accreditation Board (CEAB)-accredited programs, degrees from Washington Accord signatories have to be evaluated.

*Should taking the PE exam be allowed prior to gaining four years of experience?*
A minimum of four years of experience should be required for someone who holds an undergraduate degree. Some exceptions could be allowed for those with a master's or doctoral degree.

*Should the FE or PE exams be waived for particular candidates?*

There are circumstances in which waiving the FE exam is warranted for comity applicants (for example, for long-established practice). The PE exam should not be waived.

### Identifying best practices

The committee recommends the following for best practice when evaluating initial or comity licensure applications:

- To share information on disciplinary matters, boards should send adjoining jurisdictions a certified copy of the consent order.
- Boards should make background checks with a law enforcement database such as Westlaw, LexisNexis, or the state police, as well as the NCEES Enforcement Exchange database.
- Boards should work toward receiving applications, supporting documents, and fees electronically.
- Boards should work toward using model applications and supporting documentation forms.
- MBAs should update the Member Board survey information on a quarterly basis.

Looking forward, the committee hopes to continue next year and begin developing common forms for those jurisdictions that wish to use them, including models of the following:

- Application form
- Verification of experience/reference form
- Exam/licensure verification form
- Code of ethics exam, which will be required of all applicants

## ENGINEERING EDUCATION

*continued from page 9*

how achievement of the learning outcomes would be assessed; and whether the mentoring would be consistent and verifiable, and would actually achieve the minimal expectations in all cases.

Courses such as one-week intensive industry courses could count toward the educational requirement, while continuing education courses as they mostly are today (not necessarily with rigor and assessment) would not. The task force created a new term—assessed learning days—to describe this coursework and to highlight that these educational experiences are different from college courses and continuing education courses.

Ultimately, the task force agreed that permitting the additional educational requirements to be satisfied by structured mentoring combined with education and experience in this manner is very different from the other pathways to licensure and needs much more study to determine its feasibility. As such, the task force will present a motion to charge the appropriate committee to further studying this concept.



HENRY V. LILES JR., P.E.
UPLG COMMITTEE CHAIR

# UPLG Committee proposes adding resident professional requirement to *Model Law*

Every five years, the Committee on Uniform Procedures and Legislative Guidelines (UPLG) is charged with comprehensively reviewing the *Model Law* and *Model Rules*. When it conducted its most recent review in 2008–09, the committee discussed whether there is a need for every branch office that offers engineering or surveying services to have a responsible engineer or surveyor in charge. The committee felt that the issue was not the integral part of the five-year review, so it recommended that it be charged with analyzing the issue this year as a separate charge, which is as follows: "Consider whether there is a need for the *Model Law* and *Model Rules* to include language requiring each branch office to have a responsible engineer/surveyor in charge. Propose language revisions as appropriate."

After careful review and discussion, the UPLG Committee agreed to propose the *Model Law* changes shown here to define resident professional. The committee believes that public interests are better protected if every branch office of the entity that offers engineering or surveying services does in fact have a resident design professional that meets the following qualifications: (1) is licensed in the jurisdiction where the branch office is located, and (2) spends a majority of the normal business hours at one particular branch office. As part of this motion, it will also insert the term "administrative" in Paragraph A to clarify the different roles of the Managing Agent and the Resident Professional.

***Model Law***

**160.20 Managing Agent and Resident Professional**

A firm shall designate a managing agent and a resident professional. The managing agent and the resident professional may or may not be the same individual.

A. Managing Agent – The following criteria shall apply to the firm's designation of a managing agent:

A firm shall designate a professional engineer or a professional surveyor to be a managing agent for the firm. The managing agent is responsible for the engineering or surveying work in this jurisdiction and/or for projects within this jurisdiction offered or provided by the firm. A licensee may not be designated as a managing agent for more than one firm. A licensee who renders occasional, part-time, or consulting engineering or surveying services to, or for, a firm may not be designated as a managing agent, unless the licensee is an officer or owner of the firm. The managing agent's responsibilities include:

~~A.~~1. Renewal of the firm's certificate of authorization and notification to the board of any change in managing agent;

~~B.~~2. Overall administrative supervision of the firm's licensed and subordinate personnel providing the engineering or surveying work in this jurisdiction; and

~~C.~~3. Institution and adherence of policies of the firm that are in accordance with the Rules of Professional Conduct.

B. Resident Professional – The following criteria shall apply to the firm's designation of a resident professional:

A firm shall also designate a resident professional engineer or a resident professional surveyor, as applicable, to be in responsible charge of the practice of engineering or practice of surveying, as applicable, in each branch office in which engineering or surveying services are offered or provided. A resident professional engineer or a resident professional surveyor shall meet the following criteria:

1. Spend a majority of normal business hours at a particular branch office;
2. Be a resident professional engineer or a resident professional surveyor at only one particular branch office at one time; and
3. Be duly licensed as a professional engineer or a professional surveyor by the licensing board of the jurisdiction in which the branch office is located.

# My NCEES tailors online experience for NCEES audiences

## Secure portal is part of overall redesign to make Web site more user-friendly

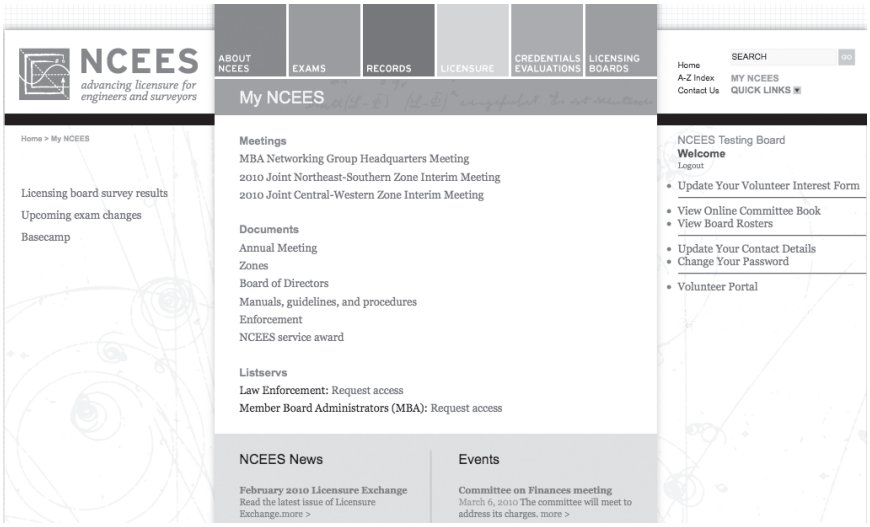
A key goal of the redesigned NCEES Web site, launched in November 2009, is to provide a customized experience for the different constituents who visit ncees.org. My NCEES, a member-only section of the Web site, is an important tool to meet that goal.

"My NCEES is tailored for specific NCEES audiences," said Steven Matthews, director of IT at NCEES. "Once they log in, users see the tools and information most relevant to them."

Member Board members and administrators can find information on upcoming meetings, including agendas and links to register online for zone and annual meetings. They can also see the committee book, which lists members and charges for standing and special committees, and the board roster.

> "Once they log in, users see the tools and information most relevant to them."

Exam volunteers can find out about future exam development meetings, update their volunteer interest form, and read the latest NCEES news.




*My NCEES is customized for specific audiences. The site was designed to help visitors easily find the information they want.*

Examinees log in to My NCEES to download exam authorizations or to update contact information.

### Updating Web browsers

In upgrading its site, NCEES took advantage of technology that requires browsers that can support these capabilities. Therefore, older versions of Web browsers such as Internet Explorer will not function well on the NCEES Web site.

NCEES doesn't want an outdated browser to hinder users' experience with ncees.org.

"The Web site now prompts visitors using Internet Explorer 6.0 to upgrade their browser," said Matthews. "We recommend they download a newer version or another Web browser so they will have full access to the site's new services."

# SURVEYING LICENSURE

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large populations have trouble supporting surveying degree programs at state universities. In such cases, some licensing boards, including Illinois, Kentucky, and Louisiana, have incorporated language that does not specifically require a four-year surveying degree. Instead, the degree can be in any major, provided the applicant completes a certain number of credits (usually 24–30) in surveying or related topics. The surveying coursework can be delivered locally or by distance education.

## Licensing exams and legislative approaches

In 1973, NCEES administered the first national FS exam; it was followed by the PS exam the following year. Early exams were task-based to match the hands-on nature of experience-only candidates. In 1999, the FS exam moved to a knowledge-based exam, attempting to test underlying knowledge of surveying concepts. Future exams may move more toward a curriculum base.

In 1972, Michigan became the first state to require a four-year degree for surveying licensure. As of now, more than half of U.S. licensing jurisdictions have removed the experience-only path to surveying licensure. Nineteen boards require a four-year degree at a minimum, seven require at least a two-year degree, while one requires 20 hours of surveying coursework but no degree.

Before the 1970s, most state statutes defined land surveying as boundaries only, an important but small part of the total surveying discipline. Many state practice acts now contain a greatly expanded definition that includes something to the effect of "a surveyor determines and displays the facts of size, shape, topography, etc." Many state societies changed their names from "society of land surveyors" to "society of surveyors." ACSM created the National Society of Professional Surveyors from the previous Land Surveys Division. In 1995, NCEES adopted language in its *Model Law* that reflects a broader practice, including photogrammetry. In 2005, NCEES removed the "land" from "land surveyor" in its *Model Law* and *Model Rules*.

***Learned profession or licensed occupation? Twenty-seven U.S. licensing boards have removed the experience-only path for surveying licensure; only 19 require a four-year degree.***

## Licensure does not guarantee professional status

It is important to remember that state regulation and licensure do not translate to professional status for surveying. Instead, they are a means of protecting the public. In the U.S., surveying has had a history of causing high-profile public damages—a few examples can be found in California's 1890s mining claims and Florida's 1920s swamp land plats. In the wake of such events, regulatory practice acts were put in place to protect the public. However, each state regulates workers who are not members of professions, such as plumbers and barbers. Licensure by itself does not indicate professional recognition.

An apprenticeship system without education requirements is a roadblock to professional recognition. Learned professions do not elevate support staff such

# MEMBER BOARD NEWS

**ARIZONA** John Willett, Erick Weiland, Harold Epperson, Laurie Woodall, and David Komm are new appointees. Sheila Bowen, Dawn Garcia, Stuart Lane, Robert Roos, and Chet Pearson are no longer board members.

**COLORADO** Michael Greer is a new appointee. Dan Corcoran is no longer a board member. Angie Kinnaird Linn is now the board administrator.

**DELAWARE PE** Daniel Barbato and Hans Medlarz are new appointees. Paul Jones and Pasquale Canzano are no longer on the board.

**DELAWARE PS** Renee Holt is the new administrative specialist for the board.

**FLORIDA PE** Paul Tomasino is no longer a board member.

**FLORIDA PS** Frances Poppell is no longer a board member.

**MISSOURI** Kenneth Frashier and Kathy Achelpohl are new appointees. Kathleen Warman is no longer a board member.

**NEBRASKA PE** Jennifer Klein is a new appointee. Dale Sall is the interim executive director.

**NEW HAMPSHIRE PS** Donna Lobdell is the new board administrator.

**NORTH CAROLINA** Willy Stewart is a new appointee. Henry Liles is no longer on the board.

**OHIO** James Mawhorr and Fred Frecker are new appointees. David Cox and Angela Newland are no longer board members.

**RHODE ISLAND PE** Wayne Moore is a new appointee. Nicholas Capezza Jr. is no longer a board member.

**TENNESSEE PE** Alton Hethcoat Jr. is a new appointee. Raymond White is no longer a board member.

**WISCONSIN** John Lease is the new board administrator. Steven Nielsen is no longer a board member.

as technicians to a professional rank. There must be two distinct sources of employees and two distinct paths to credentials. The professional tract recruits college-capable high school students who then receive a professional education. We should not think of our technicians as future professionals unless they are pursuing a degree.

A learned professional must have the ability to speak confidently, write authoritatively, research published information, analyze issues, and apply math and science when needed. These things cannot be learned entirely on the job. Public protection also comes from completion of a college program—not only by passing an exam.

## Conclusion

In the last 60 years, the surveying profession has made great progress toward professional distinction and recognition. However, the lack of a national four-year degree entry standard is slowing the progress greatly. I believe getting past this phase will lead to greater public protection and recognition for professional surveyors.

## Upcoming Events

**April 8-10**
Joint Northeast/Southern Zone Interim Meeting, Tampa, Florida

**April 9-10**
Mechanical Exam Meeting, Clemson, South Carolina

**April 16-17**
Exam Administration

**April 23-24**
Civil Exam Meeting, Clemson, South Carolina

**April 30-May 1**
Structural Exam Meeting, Clemson, South Carolina

**May 13-15**
Chemical Exam Meeting, Clemson, South Carolina

Joint Central/Western Zone Interim Meeting, Salt Lake City, Utah

**May 17-19**
Board of Directors' Meeting, Salt Lake City, Utah

**May 21-22**
FE Exam Meeting, Clemson, South Carolina

Licensure
EXCHANGE

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# NCEES judges emphasize surveying practices at Future City Competition

At the Future City national finals, held February 13–16 in Washington, D.C., NCEES Past President Martin Pedersen, P.L.S., and EPS Committee chair Gary Thompson, P.L.S., were on hand to check the surveying of tomorrow's cities. The two judged the Best Land Surveying Practices award, which is sponsored by NCEES.

Now in its 18th year, the National Engineers Week Future City Competition challenges middle school teams to design their vision of the city of tomorrow. Davidson IB Middle School of Davidson, North Carolina, took first place in the national competition. Northern Nevada Home Schools–Mt. Rose from Reno, Nevada, received the Best Land Surveying Practices award.

Pedersen, a veteran judge for the special award, can see its impact. "When we first started it in 2004, few if any of the students knew what a land surveyor was and what they did. Now, after several years of the engineering mentors and teachers hearing us ask about how they used a surveyor in the layout of their city, many teams come with some knowledge of the profession," he explained.

One team used a virtual grid based on GPS coordinates for all property lines in their city, using no monuments for property corners. Others used topographic maps prepared by surveyors to plan drainage and building layout.

"This is a very good outreach for NCEES, allowing us to interact with middle school kids and let them know what surveyors do, what education's required, and that they have to be licensed," said Pedersen. "One of the questions we always ask is, 'What do the letters P.L.S. behind our names mean?'"

"One of the questions we always ask is, 'What do the letters P.L.S. behind our names mean?'"